

10/534894

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Docket: 186660/US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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|---------------|-----------------------------------|----------------------------|
| Applicant: | Xiangyin Kong | |
| International | | |
| Appln. No.: | PCT/CN2003/000956 | |
| International | | |
| Filing Date | 13 November 2003 (13.11.2003) | Examiner: Unknown |
| | METHOD OF DIAGNOSING AND TREATING | |
| | BALDNESS USING HUMAN AND MOUSE | |
| | RHOR GENE AND CODED PRODUCT | |
| Title: | THEREOF | Group Art Unit: Unknown |

COMMUNICATION UNDER 37 C.F.R. § 1.821

Mail Stop PCT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

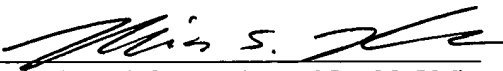
Sir:

A paper copy of the SEQUENCE LISTING, to conform the above-identified application to the requirements of 37 C.F.R. §§ 1.821 through 1.825, is submitted herewith. In accordance with 37 C.F.R. § 1.821(e), a copy of the above-identified SEQUENCE LISTING in ASCII computer readable form is also enclosed herewith.

Respectfully submitted,

DORSEY & WHITNEY LLP
Customer Number 25763

Date: May 13, 2005

By: 
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Suite 1500, 50 South Sixth Street
Minneapolis, MN 55402-1498
(612) 752-7367

026806EX.TXT
SEQUENCE LISTING

<110> SHANGHAI INSTITUTES FOR BIOLOGICAL SCIENCES, CAS

<120> METHOD OF DIAGNOSING AND TREATING BALDNESS USING HUMAN AND MOUSE RHOR GENE
AND CODED PRODUCT THEREOF

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<150> CN 02145353.9

<151> 2002-11-13

<160> 14

<170> PatentIn version 3.1

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| cca cca gag agc cag gcc ccc ggc gag cag gat agc atg ctt cct gag | 144 |
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| Gln Ala Ser Leu Ser Gln Ser Ile Arg Lys Ser Thr Ala Gln Trp Phe | |
| 85 90 95 | |

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| ggg gtc agc ggc gac tgg gag ggc aag cga caa aac tgg cat cgt cgc | 336 |
| Gly Val Ser Gly Asp Trp Glu Gly Lys Arg Gln Asn Trp His Arg Arg | |
| 100 105 110 | |

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| agc ctg cac cac tgc agc gtg cac tat ggc cgc ctc aag gcc tcg tgc | 384 |
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| act Thr 145 | gag Glu | tct Ser | cca Pro | aaa Lys | ccg Pro 150 | tgc Cys | aag Lys | atg Met | ccc Pro | aag Lys 155 | att Ile | gtg Val | gat Asp | cca Pro | ctg Leu 160 | 480 |
| gct Ala | cgg Arg | ggt Gly | agg Arg | gcc Ala 165 | ttc Phe | cgc Arg | cat His | cca Pro | gat Asp 170 | gag Glu | gtg Val | gac Asp | cgg Arg | cct Pro 175 | cac His | 528 |
| gct Ala | gcc Ala | cac His | cca Pro 180 | cct Pro | ctg Leu | act Thr | cca Pro | ggg Gly 185 | gtc Val | ctg Leu | tct Ser | ctc Leu | aca Thr 190 | tcc Ser | ttc Phe | 576 |
| acc Thr | agt Ser | gtc Val 195 | cgc Arg | tct Ser | ggc Gly | tac Tyr | tcc Ser 200 | cat His | ctg Leu | ccc Pro | cgc Arg | cgc Arg 205 | aag Lys | agg Arg | ata Ile | 624 |
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| cgt Arg 225 | tcc Ser | gtg Val | cta Leu | gat Asp | gcg Ala 230 | act Thr | ggg Gly | cag Gln | cgg Arg | tgc Cys 235 | cgg Arg | cat His | gtc Val | aaa Lys | cgc Arg 240 | 720 |
| agc Ser | ttc Phe | gct Ala | tac Tyr | ccc Pro 245 | agc Ser | ttc Phe | ctg Leu | gag Glu | gag Glu 250 | gat Asp | gct Ala | gtc Val | gat Asp | gga Gly 255 | gct Ala | 768 |
| gac Asp | acc Thr | ttc Phe | gac Asp 260 | tcc Ser | tcc Ser | ttt Phe | ttt Phe | agt Ser 265 | aag Lys | gaa Glu | gaa Glu | atg Met | agc Ser 270 | tcc Ser | atg Met | 816 |
| cct Pro | gac Asp | gat Asp 275 | gtc Val | ttt Phe | gag Glu | tcc Ser | ccc Pro 280 | cca Pro | ctc Leu | tct Ser | gcc Ala | agc Ser 285 | tac Tyr | ttc Phe | cga Arg | 864 |
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| ccg Pro 305 | cta Leu | aaa Lys | gaa Glu | tac Tyr | agc Ser 310 | ggt Gly | ggc Gly | cga Arg | gcc Ala | ctg Leu 315 | ggt Gly | ccc Pro | ggg Gly | acc Thr | cag Gln 320 | 960 |
| cgt Arg | ggc Gly | aaa Lys | cgc Arg | att Ile 325 | gcc Ala | tcc Ser | aaa Lys | gta Val | aag Lys 330 | cac His | ttt Phe | gca Ala | ttt Phe | gac Asp 335 | cgg Arg | 1008 |
| aag Lys | aag Lys | agg Arg | cac His 340 | tac Tyr | ggc Gly | ctg Leu | ggt Gly | gtc Val 345 | gtg Val | ggt Gly | aac Asn | tgg Trp | ctc Leu 350 | aac Asn | cga Arg | 1056 |
| agc Ser | tat Tyr | cga Arg 355 | cgc Arg | agc Ser | atc Ile | agc Ser | agc Ser 360 | acc Thr | gtg Val | cag Gln | cgg Arg | cag Gln 365 | ctg Leu | gag Glu | agc Ser | 1104 |
| ttc Phe | gat Asp 370 | agc Ser | cac His | cgg Arg | ccc Pro | tac Tyr 375 | ttc Phe | acc Thr | tac Tyr | tgg Trp | ctg Leu 380 | acg Thr | ttc Phe | gtt Val | cac His | 1152 |
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| Gly | Phe | Ala | Gln | His | Val | Thr | Thr | Gln | Leu | Val | Leu | Lys | Asn | Arg | Gly | |
| | | | | 405 | | | | | 410 | | | | | 415 | | |
| gtg | tat | gag | agc | gtg | aag | tac | atc | cag | cag | gag | aac | ttc | tgg | att | ggc | 1296 |
| Val | Tyr | Glu | Ser | Val | Lys | Tyr | Ile | Gln | Gln | Glu | Asn | Phe | Trp | Ile | Gly | |
| | | | 420 | | | | | 425 | | | | | 430 | | | |
| ccc | agc | tcg | att | gac | ctc | att | cac | ctg | gga | gca | aag | ttc | tcg | ccc | tgc | 1344 |
| Pro | Ser | Ser | Ile | Asp | Leu | Ile | His | Leu | Gly | Ala | Lys | Phe | Ser | Pro | Cys | |
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| atc | cgg | aag | gac | cag | caa | att | gag | cag | ctg | gta | cgg | agg | gag | cgc | gac | 1392 |
| Ile | Arg | Lys | Asp | Gln | Gln | Ile | Glu | Gln | Leu | Val | Arg | Arg | Glu | Arg | Asp | |
| | 450 | | | | | 455 | | | | | 460 | | | | | |
| att | gag | cgc | acc | tct | ggc | tgc | tgt | gtc | cag | aat | gac | cgc | tcg | ggc | tgc | 1440 |
| Ile | Glu | Arg | Thr | Ser | Gly | Cys | Cys | Val | Gln | Asn | Asp | Arg | Ser | Gly | Cys | |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 | |
| atc | cag | acc | ctg | aag | aag | gac | tgc | tcg | gag | act | tta | gcc | acg | ttc | gta | 1488 |
| Ile | Gln | Thr | Leu | Lys | Lys | Asp | Cys | Ser | Glu | Thr | Leu | Ala | Thr | Phe | Val | |
| | | | | 485 | | | | | 490 | | | | | 495 | | |
| aag | tgg | cag | aat | gat | act | ggg | ccc | tca | gac | aag | tct | gac | ctg | agc | cag | 1536 |
| Lys | Trp | Gln | Asn | Asp | Thr | Gly | Pro | Ser | Asp | Lys | Ser | Asp | Leu | Ser | Gln | |
| | | | 500 | | | | 505 | | | | | | 510 | | | |
| aag | cag | cca | tcg | gcg | gtt | gtg | tgc | cac | caa | gac | ccc | agg | acc | tgt | gaa | 1584 |
| Lys | Gln | Pro | Ser | Ala | Val | Val | Cys | His | Gln | Asp | Pro | Arg | Thr | Cys | Glu | |
| | | 515 | | | | | 520 | | | | | 525 | | | | |
| gag | cct | gcc | tcc | agt | ggg | gcc | cac | atc | tgg | cct | gat | gac | att | acc | aag | 1632 |
| Glu | Pro | Ala | Ser | Ser | Gly | Ala | His | Ile | Trp | Pro | Asp | Asp | Ile | Thr | Lys | |
| | 530 | | | | | 535 | | | | | 540 | | | | | |
| tgg | ccg | atc | tgc | aca | gag | cag | gct | cag | agc | aac | cac | acg | ggc | ttg | ttg | 1680 |
| Trp | Pro | Ile | Cys | Thr | Glu | Gln | Ala | Gln | Ser | Asn | His | Thr | Gly | Leu | Leu | |
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| cac | ata | gac | tgt | aag | atc | aaa | ggc | cgc | ccc | tgc | tgc | atc | ggc | acc | aag | 1728 |
| His | Ile | Asp | Cys | Lys | Ile | Lys | Gly | Arg | Pro | Cys | Cys | Ile | Gly | Thr | Lys | |
| | | | | 565 | | | | | 570 | | | | | 575 | | |
| ggc | agc | tgc | gag | atc | acc | act | cgg | gag | tac | tgt | gag | ttc | atg | cat | ggc | 1776 |
| Gly | Ser | Cys | Glu | Ile | Thr | Thr | Arg | Glu | Tyr | Cys | Glu | Phe | Met | His | Gly | |
| | | | 580 | | | | | 585 | | | | | 590 | | | |
| tat | ttc | cat | gaa | gac | gcg | acg | ctg | tgt | tcc | cag | gtg | cac | tgt | tta | gac | 1824 |
| Tyr | Phe | His | Glu | Asp | Ala | Thr | Leu | Cys | Ser | Gln | Val | His | Cys | Leu | Asp | |
| | | 595 | | | | | 600 | | | | | 605 | | | | |
| aag | gtg | tgt | ggg | ctc | ctg | cct | ttc | ctc | aac | cct | gag | gtc | cct | gac | cag | 1872 |
| Lys | Val | Cys | Gly | Leu | Leu | Pro | Phe | Leu | Asn | Pro | Glu | Val | Pro | Asp | Gln | |
| | 610 | | | | | 615 | | | | | 620 | | | | | |
| ttc | tac | cgg | atc | tgg | ctg | tct | tta | ttc | ctg | cat | gct | ggc | ata | gtg | cac | 1920 |
| Phe | Tyr | Arg | Ile | Trp | Leu | Ser | Leu | Phe | Leu | His | Ala | Gly | Ile | Val | His | |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 | |
| tgc | ctt | gtg | tct | gtg | gtc | ttc | caa | atg | acc | atc | ctg | agg | gac | cta | gag | 1968 |

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|------|
| Cys | Leu | Val | Ser | Val | Val | Phe | Gln | Met | Thr | Ile | Leu | Arg | Asp | Leu | Glu | | |
| | | | | 645 | | | | | 650 | | | | | 655 | | | |
| aag | ctg | gcc | ggc | tgg | cac | cgc | atc | tcc | atc | atc | ttc | atc | ctt | agt | ggc | | 2016 |
| Lys | Leu | Ala | Gly | Trp | His | Arg | Ile | Ser | Ile | Ile | Phe | Ile | Leu | Ser | Gly | | |
| | | | 660 | | | | | 665 | | | | | 670 | | | | |
| att | aca | ggc | aac | ctg | gcc | agc | gcc | atc | ttc | ctc | ccc | tac | cgg | gca | gag | | 2064 |
| Ile | Thr | Gly | Asn | Leu | Ala | Ser | Ala | Ile | Phe | Leu | Pro | Tyr | Arg | Ala | Glu | | |
| | | 675 | | | | | 680 | | | | | 685 | | | | | |
| gtg | ggc | cca | gcc | ggg | tcg | cag | ttc | ggc | ctc | ctc | gcc | tgc | ctc | ttc | gtg | | 2112 |
| Val | Gly | Pro | Ala | Gly | Ser | Gln | Phe | Gly | Leu | Leu | Ala | Cys | Leu | Phe | Val | | |
| | 690 | | | | | 695 | | | | | 700 | | | | | | |
| gag | ctg | ttc | cag | agc | tgg | cag | ctg | ttg | gag | cgg | ccg | tgg | aag | gcc | ttc | | 2160 |
| Glu | Leu | Phe | Gln | Ser | Trp | Gln | Leu | Leu | Glu | Arg | Pro | Trp | Lys | Ala | Phe | | |
| 705 | | | | | 710 | | | | 715 | | | | | | 720 | | |
| ttc | aac | ctg | tcg | gcc | att | gtg | ctt | ttc | ctc | ttc | atc | tgt | ggc | ctc | ctg | | 2208 |
| Phe | Asn | Leu | Ser | Ala | Ile | Val | Leu | Phe | Leu | Phe | Ile | Cys | Gly | Leu | Leu | | |
| | | | | 725 | | | | | 730 | | | | | 735 | | | |
| ccc | tgg | ata | gac | aac | atc | gcc | cac | atc | ttc | ggg | ttc | ctc | agc | ggc | atg | | 2256 |
| Pro | Trp | Ile | Asp | Asn | Ile | Ala | His | Ile | Phe | Gly | Phe | Leu | Ser | Gly | Met | | |
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| ctt | ctg | gcc | ttc | gcc | ttc | ctg | cct | tac | att | acc | ttc | ggc | acc | agc | gac | | 2304 |
| Leu | Leu | Ala | Phe | Ala | Phe | Leu | Pro | Tyr | Ile | Thr | Phe | Gly | Thr | Ser | Asp | | |
| | | 755 | | | | | 760 | | | | | 765 | | | | | |
| aag | tac | cgc | aag | cga | gcc | ctc | atc | ctc | gtg | tcg | ctg | ctg | gtc | ttt | gct | | 2352 |
| Lys | Tyr | Arg | Lys | Arg | Ala | Leu | Ile | Leu | Val | Ser | Leu | Leu | Val | Phe | Ala | | |
| | 770 | | | | | 775 | | | | | 780 | | | | | | |
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| Gly | Leu | Phe | Ala | Ser | Leu | Val | Leu | Trp | Leu | Tyr | Ile | Tyr | Pro | Ile | Asn | | |
| 785 | | | | | 790 | | | | 795 | | | | | | 800 | | |
| tgg | ccc | tgg | atc | gag | tac | ctc | acc | tgc | ttt | ccc | ttc | acc | agc | cgc | ttc | | 2448 |
| Trp | Pro | Trp | Ile | Glu | Tyr | Leu | Thr | Cys | Phe | Pro | Phe | Thr | Ser | Arg | Phe | | |
| | | | | 805 | | | | 810 | | | | | | 815 | | | |
| tgt | gag | aag | tac | gag | cta | gac | cag | gtg | cta | cac | taa | | | | | | 2484 |
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| Met | Ala | Ser | Ala | Asp | Lys | Asn | Gly | Ser | Asn | Leu | Pro | Ser | Val | Ser | Gly | | |
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| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Ser | Arg | Leu | Gln | Ser | Arg | Lys | Pro | Pro | Asn | Leu | Ser | Ile | Thr | Ile | Pro | | |
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 Thr Glu Ser Pro Lys Pro Cys Lys Met Pro Lys Ile Val Asp Pro Leu
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 Ala Ala His Pro Pro Leu Thr Pro Gly Val Leu Ser Leu Thr Ser Phe
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 Thr Ser Val Arg Ser Gly Tyr Ser His Leu Pro Arg Arg Lys Arg Ile
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 Arg Ser Val Leu Asp Ala Thr Gly Gln Arg Cys Arg His Val Lys Arg
 225 230 235 240
 Ser Phe Ala Tyr Pro Ser Phe Leu Glu Glu Asp Ala Val Asp Gly Ala
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 Asp Thr Phe Asp Ser Ser Phe Phe Ser Lys Glu Glu Met Ser Ser Met
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 Pro Asp Asp Val Phe Glu Ser Pro Pro Leu Ser Ala Ser Tyr Phe Arg
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Gly Val Pro His Ser Ala Ser Pro Val Ser Pro Asp Gly Val His Ile
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Pro Leu Lys Glu Tyr Ser Gly Gly Arg Ala Leu Gly Pro Gly Thr Gln
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Arg Gly Lys Arg Ile Ala Ser Lys Val Lys His Phe Ala Phe Asp Arg
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Lys Lys Arg His Tyr Gly Leu Gly Val Val Gly Asn Trp Leu Asn Arg
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Ser Tyr Arg Arg Ser Ile Ser Ser Thr Val Gln Arg Gln Leu Glu Ser
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Ile Ile Ile Thr Leu Leu Val Ile Cys Thr Tyr Gly Ile Ala Pro Val
385 390 395 400

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Val Tyr Glu Ser Val Lys Tyr Ile Gln Gln Glu Asn Phe Trp Ile Gly
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Pro Ser Ser Ile Asp Leu Ile His Leu Gly Ala Lys Phe Ser Pro Cys
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595 600 605

Lys Val Cys Gly Leu Leu Pro Phe Leu Asn Pro Glu Val Pro Asp Gln
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Phe Tyr Arg Ile Trp Leu Ser Leu Phe Leu His Ala Gly Ile Val His
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Cys Leu Val Ser Val Val Phe Gln Met Thr Ile Leu Arg Asp Leu Glu
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Lys Leu Ala Gly Trp His Arg Ile Ser Ile Ile Phe Ile Leu Ser Gly
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Val Gly Pro Ala Gly Ser Gln Phe Gly Leu Leu Ala Cys Leu Phe Val
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Glu Leu Phe Gln Ser Trp Gln Leu Leu Glu Arg Pro Trp Lys Ala Phe
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Leu Leu Ala Phe Ala Phe Leu Pro Tyr Ile Thr Phe Gly Thr Ser Asp
755 760 765

Lys Tyr Arg Lys Arg Ala Leu Ile Leu Val Ser Leu Leu Val Phe Ala
770 775 780

Gly Leu Phe Ala Ser Leu Val Leu Trp Leu Tyr Ile Tyr Pro Ile Asn
Page 7

785

790

800

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Cys Glu Lys Tyr Glu Leu Asp Gln Val Leu His
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| cccacccacc tctgactcca ggggtcctgt ctctcacatc cttcaccatg tccgctctgg | 420 |
| ctactcccat ctgccccgcc gcaagaggat atctgttgcc catatgagct ttcaggcagc | 480 |
| cgccgccctc ctcaaggggc gttccgtgct agatgcgact gggcagcggg gccggcatgt | 540 |
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WO 2004/052927

SEQUENCE LISTING

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<120> METHOD OF DIAGNOSING AND TREATING BALDNESS USING HUMAN AND MOUSE RHOR GENE AND CODED PRODUCT THEREOF

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<151> 2002-11-13

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| agc cgc ctg cag agc cgg aag cca ccc aac ctc tcc atc acc atc ccg | 96 |
| Ser Arg Leu Gln Ser Arg Lys Pro Pro Asn Leu Ser Ile Thr Ile Pro | |
| 20 25 30 | |
| cca cca gag agc cag gcc ccc ggc gag cag gat agc atg ctt cct gag | 144 |
| Pro Pro Glu Ser Gln Ala Pro Gly Glu Gln Asp Ser Met Leu Pro Glu | |
| 35 40 45 | |
| agg cgc aag aac cca gcc tac ctg aag agt gtc agc cta cag gag ccc | 192 |
| Arg Arg Lys Asn Pro Ala Tyr Leu Lys Ser Val Ser Leu Gln Glu Pro | |
| 50 55 60 | |
| cgg gga cga tgg cag gag ggc gca gag aag cgc ccc ggc ttc cgc cgc | 240 |
| Arg Gly Arg Trp Gln Glu Gly Ala Glu Lys Arg Pro Gly Phe Arg Arg | |
| 65 70 75 80 | |
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| Gln Ala Ser Leu Ser Gln Ser Ile Arg Lys Ser Thr Ala Gln Trp Phe | |
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| Gly Val Ser Gly Asp Trp Glu Gly Lys Arg Gln Asn Trp His Arg Arg | |
| 100 105 110 | |
| agc ctg cac cac tgc agc gtg cac tat ggc cgc ctc aag gcc tcg tgc | 384 |
| Ser Leu His His Cys Ser Val His Tyr Gly Arg Leu Lys Ala Ser Cys | |
| 115 120 125 | |
| cag aga gaa ctg gag ctg ccc agc cag gag gtg cca tcc ttc cag ggc | 432 |
| Gln Arg Glu Leu Glu Leu Pro Ser Gln Glu Val Pro Ser Phe Gln Gly | |
| 130 135 140 | |
| act gag tct cca aaa ccg tgc aag atg ccc aag att gtg gat cca ctg | 480 |
| Thr Glu Ser Pro Lys Pro Cys Lys Met Pro Lys Ile Val Asp Pro Leu | |
| 145 150 155 160 | |
| gct cgg ggt agg gcc ttc cgc cat cca gat gag gtg gac cgg cct cac | 528 |
| Ala Arg Gly Arg Ala Phe Arg His Pro Asp Glu Val Asp Arg Pro His | |

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| gct gcc cac cca cct ctg act cca ggg gtc ctg tct ctc aca tcc ttc | | | | 576 |
| Ala Ala His Pro Pro Leu Thr Pro Gly Val Leu Ser Leu Thr Ser Phe | | | | |
| | 180 | 185 | 190 | |
| acc agt gtc cgc tct ggc tac tcc cat ctg ccc cgc cgc aag agg ata | | | | 624 |
| Thr Ser Val Arg Ser Gly Tyr Ser His Leu Pro Arg Arg Lys Arg Ile | | | | |
| | 195 | 200 | 205 | |
| tct gtt gcc cat atg agc ttt cag gca gcc gcc gcc ctc ctc aag ggg | | | | 672 |
| Ser Val Ala His Met Ser Phe Gln Ala Ala Ala Ala Leu Leu Lys Gly | | | | |
| | 210 | 215 | 220 | |
| cgt tcc gtg cta gat gcg act ggg cag cgg tgc cgg cat gtc aaa cgc | | | | 720 |
| Arg Ser Val Leu Asp Ala Thr Gly Gln Arg Cys Arg His Val Lys Arg | | | | |
| | 225 | 230 | 235 | 240 |
| agc ttc gct tac ccc agc ttc ctg gag gag gat gct gtc gat gga gct | | | | 768 |
| Ser Phe Ala Tyr Pro Ser Phe Leu Glu Glu Asp Ala Val Asp Gly Ala | | | | |
| | 245 | 250 | 255 | |
| gac acc ttc gac tcc tcc ttt ttt agt aag gaa gaa atg agc tcc atg | | | | 816 |
| Asp Thr Phe Asp Ser Ser Phe Phe Ser Lys Glu Glu Met Ser Ser Met | | | | |
| | 260 | 265 | 270 | |
| cct gac gat gtc ttt gag tcc ccc cca ctc tct gcc agc tac ttc cga | | | | 864 |
| Pro Asp Asp Val Phe Glu Ser Pro Pro Leu Ser Ala Ser Tyr Phe Arg | | | | |
| | 275 | 280 | 285 | |
| ggg gtc cca cac tct gcc tcc ccg gtc tcc ccg gat gga gtg cac atc | | | | 912 |
| Gly Val Pro His Ser Ala Ser Pro Val Ser Pro Asp Gly Val His Ile | | | | |
| | 290 | 295 | 300 | |
| ccg cta aaa gaa tac agc ggt ggc cga gcc ctg ggt ccc ggg acc cag | | | | 960 |
| Pro Leu Lys Glu Tyr Ser Gly Gly Arg Ala Leu Gly Pro Gly Thr Gln | | | | |
| | 305 | 310 | 315 | 320 |
| cgt ggc aaa cgc att gcc tcc aaa gta aag cac ttt gca ttt gac cgg | | | | 1008 |
| Arg Gly Lys Arg Ile Ala Ser Lys Val Lys His Phe Ala Phe Asp Arg | | | | |
| | 325 | 330 | 335 | |
| aag aag agg cac tac ggc ctg ggt gtc gtg ggt aac tgg ctc aac cga | | | | 1056 |
| Lys Lys Arg His Tyr Gly Leu Gly Val Val Gly Asn Trp Leu Asn Arg | | | | |
| | 340 | 345 | 350 | |
| agc tat cga cgc agc atc agc agc acc gtg cag cgg cag ctg gag agc | | | | 1104 |
| Ser Tyr Arg Arg Ser Ile Ser Ser Thr Val Gln Arg Gln Leu Glu Ser | | | | |
| | 355 | 360 | 365 | |
| ttc gat agc cac cgg ccc tac ttc acc tac tgg ctg acg ttc gtt cac | | | | 1152 |
| Phe Asp Ser His Arg Pro Tyr Phe Thr Tyr Trp Leu Thr Phe Val His | | | | |
| | 370 | 375 | 380 | |
| atc atc atc acc ttg ctg gtg atc tgc acc tat ggc atc gca cct gtg | | | | 1200 |
| Ile Ile Ile Thr Leu Leu Val Ile Cys Thr Tyr Gly Ile Ala Pro Val | | | | |
| | 385 | 390 | 395 | 400 |
| ggc ttt gcc cag cac gtt acc acc cag ctg gtg ctg aag aac aga ggc | | | | 1248 |
| Gly Phe Ala Gln His Val Thr Thr Gln Leu Val Leu Lys Asn Arg Gly | | | | |
| | 405 | 410 | 415 | |
| gtg tat gag agc gtg aag tac atc cag cag gag aac ttc tgg att ggc | | | | 1296 |
| Val Tyr Glu Ser Val Lys Tyr Ile Gln Gln Glu Asn Phe Trp Ile Gly | | | | |
| | 420 | 425 | 430 | |
| ccc agc tcg att gac ctc att cac ctg gga gca aag ttc tcg ccc tgc | | | | 1344 |
| Pro Ser Ser Ile Asp Leu Ile His Leu Gly Ala Lys Phe Ser Pro Cys | | | | |
| | 435 | 440 | 445 | |
| atc cgg aag gac cag caa att gag cag ctg gta cgg agg gag cgc gac | | | | 1392 |
| Ile Arg Lys Asp Gln Gln Ile Glu Gln Leu Val Arg Arg Glu Arg Asp | | | | |
| | 450 | 455 | 460 | |
| att gag cgc acc tct ggc tgc tgt gtc cag aat gac cgc tcg ggc tgc | | | | 1440 |
| Ile Glu Arg Thr Ser Gly Cys Cys Val Gln Asn Asp Arg Ser Gly Cys | | | | |
| | 465 | 470 | 475 | 480 |
| atc cag acc ctg aag aag gac tgc tcg gag act tta gcc acg ttc gta | | | | 1488 |

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 35 40 45
 Arg Arg Lys Asn Pro Ala Tyr Leu Lys Ser Val Ser Leu Gln Glu Pro
 50 55 60
 Arg Gly Arg Trp Gln Glu Gly Ala Glu Lys Arg Pro Gly Phe Arg Arg
 65 70 75 80
 Gln Ala Ser Leu Ser Gln Ser Ile Arg Lys Ser Thr Ala Gln Trp Phe
 85 90 95
 Gly Val Ser Gly Asp Trp Glu Gly Lys Arg Gln Asn Trp His Arg Arg
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 Gln Arg Glu Leu Glu Leu Pro Ser Gln Glu Val Pro Ser Phe Gln Gly
 130 135 140
 Thr Glu Ser Pro Lys Pro Cys Lys Met Pro Lys Ile Val Asp Pro Leu
 145 150 155 160
 Ala Arg Gly Arg Ala Phe Arg His Pro Asp Glu Val Asp Arg Pro His
 165 170 175
 Ala Ala His Pro Pro Leu Thr Pro Gly Val Leu Ser Leu Thr Ser Phe
 180 185 190
 Thr Ser Val Arg Ser Gly Tyr Ser His Leu Pro Arg Arg Lys Arg Ile
 195 200 205
 Ser Val Ala His Met Ser Phe Gln Ala Ala Ala Leu Leu Lys Gly
 210 215 220
 Arg Ser Val Leu Asp Ala Thr Gly Gln Arg Cys Arg His Val Lys Arg
 225 230 235 240
 Ser Phe Ala Tyr Pro Ser Phe Leu Glu Glu Asp Ala Val Asp Gly Ala
 245 250 255
 Asp Thr Phe Asp Ser Ser Phe Phe Ser Lys Glu Glu Met Ser Ser Met
 260 265 270
 Pro Asp Asp Val Phe Glu Ser Pro Pro Leu Ser Ala Ser Tyr Phe Arg
 275 280 285
 Gly Val Pro His Ser Ala Ser Pro Val Ser Pro Asp Gly Val His Ile
 290 295 300
 Pro Leu Lys Glu Tyr Ser Gly Gly Arg Ala Leu Gly Pro Gly Thr Gln
 305 310 315 320
 Arg Gly Lys Arg Ile Ala Ser Lys Val Lys His Phe Ala Phe Asp Arg
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 Lys Lys Arg His Tyr Gly Leu Gly Val Gly Asn Trp Leu Asn Arg
 340 345 350
 Ser Tyr Arg Arg Ser Ile Ser Ser Thr Val Gln Arg Gln Leu Glu Ser

355 360 365
 Phe Asp Ser His Arg Pro Tyr Phe Thr Tyr Trp Leu Thr Phe Val His
 370 375 380
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 385 390 395 400
 Gly Phe Ala Gln His Val Thr Thr Gln Leu Val Leu Lys Asn Arg Gly
 405 410 415
 Val Tyr Glu Ser Val Lys Tyr Ile Gln Gln Glu Asn Phe Trp Ile Gly
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 515 520 525
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